Proj. 6880202-
PD-AAC-177-A1 (3)

FEB 4 1976

41p.

ACTION MEMORANDUM FOR THE ADMINISTRATOR

THRU : ES

FROM : AA/PPC, Philip Birnbaum

SUBJECT: Mali Crop Production Project

Problem: Because this proposed project exceeds $2.0 million your authorization of the attached Project Paper is requested. In addition, your approval of the project authorization constitutes approval of a procurement waiver for motor vehicles as described in Annex X to this memorandum.

Discussion: The proposed project includes two distinct but closely related activities:

1. Agriculture Production (Annex A-1, PP.1-7)

This activity will be essentially an extension and expansion of the "Operation Mils" (millet and sorghum) project in the Fifth (Mopti) Region, described between pages 13-16 of the attached PP. The activity will include:

(a) applied research to test results and recommendations from local as well as external research organizations in actual farmers' field trials for confirmation of adaptability and utility to local conditions;

(b) demonstrations of proven practices in farm fields through the pilot farmer system developed in the earlier "Operation Mils" program;

(c) in certain areas of the Dogon Plateau the applied research and extension demonstration activities will be extended to market gardening because of the significant role of market gardening in the agricultural pattern of those areas. Special attention will be given to use of improved seeds and tools, better water utilization, improved handling and preservation of harvests and better market organizations;

(d) making available to farmers agricultural tools and implements as well as production inputs on a cash or credit basis;

(e) procurement of surplus grain in the project areas by the GOM grain marketing agency (OPAM) at the official price; temporary storage by "Operation Mils"; shipment to grain deficit areas, primarily the Sixth Region; and

(f) a training program at the local level to upgrade extension agents as new practices become available for demonstration. The program will also include agricultural mechanics.

2. Rural Infrastructure (Annex A-3, PP.8-25)

The technical feasibility of "Operation Mils" is related closely to certain infrastructure activities -- specifically transportation and water supply. Transportation is limited to rural roads and pistes, while water supply includes dug and drilled wells.

The repair and improvement of certain agricultural roads is vital to the successful accomplishment of the project purposes, and can reasonably be expected to be achieved within the time frame and funds contemplated for this project. They have been identified on the basis of minimum cost and length to achieve maximum agricultural benefit in the most critical areas of need. It is recommended that a special Agricultural Road Repair Brigade be created, manned and equipped especially for the type and amount of road work required for "Operation Mils."

During the period of extreme drought (1970-1973), villages and farms located away from the Niger and Bani Rivers suffered severely from water shortage. Such villages and towns obtained their water from dug wells, many of which went dry. A three-year program of village dug water well development, improvement and augmentation in the Cercles of Bakass and Koro is proposed. Three ten-man teams of well diggers with common labor support from the villages will be utilized and vehicles, equipment and POL provided under this project.

The project seeks to help reduce dependence of the country on outside sources while focusing on perhaps the poorest sector of the economy. The project is consistent with the GOM Five-Year Plan (1974-1978).

The project is now planned to cover a three-year funding period at a cost to A.I.D. of approximately $6.0 million. A little more than $2 million is required for the first year of the project - $1.5 million of which has been programmed against the Special Sahel appropriation in order to speed project implementation (see Action Memorandum dated April 7, 1975, attached). The remainder in the first year ($689,000) plus, according to present estimates, approximately $4.0 million in regular program funds will be required for the second and third years of the project.

This crop production program clearly meets the new criteria of the Foreign Assistance Act by directing assistance toward the poorest and least fortunate of society while at the same time augmenting the production of food. In addition to assisting the Government of Mali in

coping with the effects of the drought, the following criteria were used in appraising the project proposal:

1. Institutional Adequacy. The administration and management of the project will continue through the "Operation Mils" organization. This system of managing production-oriented activities focusing on specific commodities in specified areas has been the chosen instrument of the GOM for promoting production enterprises and in this instance after two years of operation has been judged successful.

2. Economic Feasibility. The economic soundness of the project has been studied and determined to be acceptable. (See pp 18-20.)

3. Technical Soundness. Technicians of the Project Design Team concluded that on the basis of the existing "Operation Mils" it is reasonable to expect that elements of the project can be successfully executed. (pp 21-23)

4. Financial Viability. Presently planned GOM budgetary resources amount to about 11 percent of project costs the first year increasing to approximately 17 percent by the third year. It is expected that other GOM contributions, such as the cost of land used in the road improvement portions of the project and local village labor, will increase the total GOM contribution to 25% of the cost of the project. When the ProAg is being negotiated we will seek assurances that the 25% contribution will be made and that no external financing will be required by the end of the fifth year. (pp 27-28)

5. Funding and Congressional Notification. The project as designed involves a grant by the U.S. in the amount of $2,189,000 in FY 1976. Of this amount, $1,500,000 will be funds authorized under Section 639(b) of the Foreign Assistance Act of 1961, as amended ("FAA"). The remainder will be drawn from the Food and Nutrition account, Section 103 of the FAA. Section 113 of the Foreign Assistance and Related Program Appropriations Act of 1975 does not require prior Congressional Notification of uses of Section 639(b) funds; the FY 1976 Congressional Presentation ("CP") notified Congress of the use of $400,000 of Food and Nutrition funds for another activity, Operation Riz-Sorgho in the Sixth Region, under the Mali Crop Production project. Attached is a notification to the Congress of the use of an additional $689,000 from the Food and Nutrition category to finance "Operation Mils" in the Mopti Fifth Region.

6. Procurement. Annex X to this memo is a detailed description, and the necessary supporting justification, determinations, and certifications, for a procurement source waiver to implement procurement of motor vehicles for the life of this project. Although $1,500,000 provided under Section 639(b) may be used "notwithstanding any restrictions contained in this or

any other Act," the remainder of funding required for this three-year project is subject to procurement restrictions.

This project also involves local currency financing for a portion of the expenses of "Operation Mils", the Road Repair Brigade and the Village Well Digging Teams, as well as for a small amount of construction by local firms.

Recommendation: It is recommended that you approve the attached Notification to the Congress and that you sign this memorandum thereby approving the project and waiving those A.I.D. procurement requirements described in Annex X.

APPROVED _____

DISAPPROVED _____

DATE 2/10/76

Attachments: a/s

Drafted: AFR/CWR:JAPatterson:AFR/GC:STisa:cm:01-09-76

Clearances:
AA/AFR:SSScott
GC:CGladson
DAA/AFR:DSBrown
AFR/CWR:DShear (subs)
AFR/DP:RHuesmann (subs)
AFR/DS:PLyman (subs)
GC/AFR:STisa (draft)
PPC/DPRE:AHandly
SER/ENGR:PStearns (info)
SER/COM:WSchmeisser (draft)

ANNEX X

Procurement Source Waiver

I. Waiver Required: A procurement source waiver from AID Geographic Code 000 (U.S.) to Geographic Code 935 is required for motor vehicles. As discussed below, the primary basis for the waiver is that vehicles cannot be used effectively in Mali because of the unavailability of spare and repair parts and the lack of experience in the use and maintenance of U.S. motor vehicles.

The total amount of the waiver will not exceed $471,000 which will be apportioned as follows:

Equipment for Malian Road Brigade (See Annex A, pp 10-11 for a description of vehicles to be procured for this activity)

6 Dump Trucks (6 m^3)	$146,340
1 Repair Truck	65,850
2 Tank Trucks	63,410
4 Liaison Vehicles	3,900
1 Lubrication Truck	19,500
3 Pick-up Trucks (404)	24,000
	$323,000

Equipment for Malian Well Digging Group (See Annex A, p. 20 for a description of vehicles to be procured for this activity)

1 Land Rover-Long Wheel Base	$ 10,975
1 Truck 5 Ton 4X4 w/winch	35,370
2 Trucks 2 Ton 4X4 w/winch	58,540
	$104,885

Sub-Total	$427,885
Cost Escalation of 10%	43,000
Grand Total	$470,885

II. Justification: Mali, like the other Sahelian states, faces a situation in which imports emanate almost entirely from France and other EEC countries. This trade pattern, which has developed over many years of close association between Mali and Europe, has resulted in Malians being trained in the use and maintenance of European-made goods and in the establishment of European distribution and service facilities in Mali. American manufacturers, distribution and service firms are only recently beginning to take a tentative and still insignificant look at the Malian market. As a result, special parts for U.S.-made equipment are not available in Mali, and Malians are not trained in the basics of maintenance. In the past, audits and inspections of AID projects in the Sahelian area have been sharply

critical of the difficulties of host governments in maintaining U.S. motor vehicles after project phaseout.

We believe that motor vehicles which are essential to the successful implementation of the project, are, in effect, not available from eligible sources. The concept of availability from eligible sources means effective availability. For motor vehicles to be truly available from an eligible source, they must not only be of a type that theoretically can be used for the project, but they must also be of a type that the host country can use effectively over a normal useful life in light of the availability of spare parts and the ability to service and maintain the motor vehicles.

We also believe that there are compelling political considerations that support this waiver. It is necessary for the United States to provide motor vehicles that can be maintained effectively, and for which spare parts are available, in Mali. Otherwise, the political benefits to be obtained from providing the proposed assistance will be frustrated, and the image of effectiveness of the United States will be impaired, if the motor vehicles financed by the United States are of a sort that cannot be used effectively by Mali over a normal useful life.

These motor vehicles are essential to the success of the project and the Government of Mali (GOM) does not have the foreign exchange necessary to procure them. Other donors are not interested in providing funding because of heavy involvement in commercial crops or in other sectors or other geographic areas in Mali.

For these reasons it is necessary, in order to carry out the purposes of the FAA, to waive the requirement of Section 636(i) of the FAA that motor vehicles procured for the project be manufactured in the United States. In addition, it is necessary to authorize procurement of the above-described motor vehicles from Geographic Code 935 countries because the exclusion of procurement from these sources would seriously impede attainment of U.S. foreign policy objectives and the objectives of the foreign assistance program.

ACTION MEMORANDUM FOR THE ASSISTANT ADMINISTRATOR, AFRICA

FROM: David Shear, AFR/CWR

SUBJECT: Mali Crop Production Project: Technical Assistance Project Determination

Problem: To determine that the Mali Crop Production Project is a technical assistance project, within the meaning of Manual Order (M.O.) 1301.1, notwithstanding the financing, under the rural infrastructure element of the project, of equipment and part of the costs of the development of a rural roads improvement and maintenance brigade and of village well digging units, costing an aggregate of approximately $3.0 million over the life of this project.

Discussion: Section II of M.O. 1301.1 defines a technical assistance project, in part, as follows:

II. Definition

A. Technical Assistance is the process through which AID assists cooperating countries to develop human skills and attitudes and to create and support the institutions necessary for social, economic and political growth and development. (See M.O. 1303.1 - The Objectives of Technical Assistance.)

B. Technical Assistance most commonly takes the form of advisory services, including the provision of professional personnel (AID, other U.S. agency, or contract personnel), and of training cooperating country nationals in the U.S. or selected third countries. For administrative purposes, a Technical Assistance Activity is defined to include all AID dollar-supported project activities, loan or grant, except those within the adopted definition of a Capital Assistance Activity (see M.O. 1201.1 - Capital Assistance Activity. General) and except Special Activities (see Chapter 1500 - Special Activities and Procedures). AID Technical Assistance projects may be directed toward development objectives in the public or the private sector of the cooperating country. Thus, as used in these manual orders and for purposes of the procedures herein established, technical assistance is broadened to include:

1. AID dollar-financed engineering, economic or management studies or surveys undertaken to identify future projects, including prospective capital projects, (e.g., a general survey of transportation needs in a cooperating country);

2. AID dollar-financed construction, expansion, equipping or alteration of a public sector physical facility (e.g., an agricultural research laboratory), where the AID investment is less than $100,000;

3. AID dollar-financed construction, expansion, equipping or alteration of a physical facility, regardless of dollar cost, where this activity, as determined by the regional Assistant Administrator, directly supports or is an integral part of a project of essentially technical assistance character.

Although the AID investment in the improvement of rural roads and water supplies in Mali under this project exceeds $100,000 these improvements directly support and are an integral part of a project of essentially technical assistance character.

The purpose of this project is primarily to increase production of millet and sorghum in the Fifth Region of Mali through support for the already established "Operation Mils." This activity will involve:

1. applied research to test results and recommendations from local as well as external research organizations in actual farmers' field trials for confirmation of adaptability and utility to local conditions;

2. demonstrations of proven practices in farm fields through the pilot farmer system developed in the earlier "Operation Mils" program;

3. in certain areas of the Dogon Plateau the applied research and extension demonstration activities will be extended to market gardening because of the significant role of market gardening in the agricultural pattern of those areas. Special attention will be given to use of improved seeds and tools, better water utilization, improved handling and preservation of harvests and better market organizations;

4. making available to farmers agricultural tools and implements as well as production inputs on a cash or credit basis;

5. procurement of surplus grain in the project areas by the GOM grain marketing agency (OPAM) at the official price; temporary storage by "Operation Mils"; shipment to grain deficit areas, primarily the Sixth Region;

6. a training program at the local level to upgrade extension agents as new practices become available for demonstration. The program will also include agricultural mechanics.

Obviously, this support for Operation Mils is technical assistance in character. (For a more detailed discussion of the technical assistance aspects of this project see pages 13-16 and 21-25 of the Mali Crop Production Project Paper.) The rural infrastructure improvement element of the project would not be undertaken except in support of Operation Mils and is important to its success.

Experience has shown that the problems related to the application of the technology, such as that developed in Operation Mils, are as much economic and logistic in nature as technical.

The practices developed are of such a nature as to be applicable by the majority of farmers with little supervision after the practices have been demonstrated. From a logistics point of view, experience with Operation Mils to date indicates that logistics can be satisfactorily handled by the existing structure of Operation Mils if adequate infrastructure and equipment are provided on a timely basis. The rural infrastructure element of the project provides for both of these constraints. It will facilitate the transportation of goods and maintenance of agricultural implements and tools, increase water supplies, release labor for other purposes, and facilitate the compost making process. The Director of Operation Mils will be involved in the selection of roads to be improved and wells to be dug under the infrastructure element of the project to assure effective use of this element and in supporting the Operation.

Recommendation: It is recommended that you determine that the dollar-financed construction aspect of the rural infrastructure portion of this project directly supports and is an integral part of a project of essentially technical assistance character and that the Mali Crop Production Project is a technical assistance project.

Approved Stanley S. Scott

Disapproved _____

Date 12/29/75

Drafted:AFR/GC:STisa:jmcs 8/5/75

Clearances:
AFR/CWR:JAPatterson
AFR/CWR:IRosenthal
AFR/DS:PLyman (subs)
SER/ENGR:PStearns (info)
AFR/DP:RHuesmann
AA/AFR:DBrown

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT PAPER FACESHEET

TO BE COMPLETED BY ORIGINATING OFFICE

1. TRANSACTION CODE (X APPROPRIATE BOX): [X] ORIGINAL [ ] CHANGE [ ] ADD [ ] DELETE

PP — DOCUMENT CODE 3

2. COUNTRY/REGIONAL ENTITY/GRANTEE: MALI

3. DOCUMENT REVISION NUMBER:

4. PROJECT NUMBER: 688-11-130-202

5. BUREAU: A. SYMBOL: AFR; B. CODE: 1

6. ESTIMATED FY OF PROJECT COMPLETION: FY 80

7. PROJECT TITLE - SHORT (STAY WITHIN BRACKETS): MALI CROP PRODUCTION

8. ESTIMATED FY OF AUTHORIZATION/OBLIGATION: A. INITIAL MO. 7 YR. 6; B. FINAL FY 80

9. SECONDARY TECHNICAL CODES (MAXIMUM SIX CODES OF THREE POSITIONS EACH):

10. ESTIMATED TOTAL COST ($000 OR EQUIVALENT, $1 = ____)

A. PROGRAM FINANCING	FIRST YEAR B. FX	C. L/C	D. TOTAL	ALL YEARS E. FX	F. L/C	G. TOTAL
AID APPROPRIATED TOTAL	1339	850	2189	5375	3500	8875
(GRANT)	(1339)	(850)	(2189)	(5375)	(3500)	(8875)
(LOAN)	( )	( )	( )	( )	( )	( )
OTHER 1.						
U.S. 2.	1339	850	2189	5375	3500	8875
HOST GOVERNMENT		278	278		1522	1522
OTHER DONOR(S)						
TOTALS	1339	1128	2467	5375	5022	10397

11. ESTIMATED COSTS/AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION (ALPHA CODE)	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE	FY 76 D. GRANT	FY 76 E. LOAN	FY 77 F. GRANT	FY 77 G. LOAN	FY 78 H. GRANT	FY 78 I. LOAN	ALL YEARS J. GRANT	ALL YEARS K. LOAN
FN			2189		2334		1675		8875	
TOTALS										
ESTIMATED EXPENDITURES			2000		2200		1700			

12. PROJECT PURPOSE(S) (STAY WITHIN BRACKETS) [ ] CHECK IF DIFFERENT FROM PID/PRP

Increase the productivity and commercialization of cereal crops in the Mopti area.

13. WERE CHANGES MADE IN THE PID/PRP FACESHEET DATA NOT INCLUDED ABOVE? IF YES, ATTACH CHANGED PID AND/OR PRP FACESHEET. [ ] YES [X] NO

15. ORIGINATING OFFICE CLEARANCE

SIGNATURE: Ronald D. Levin for

TITLE: Country Development Officer

DATE SIGNED: MO. 12 DAY 29 YR. 75

16. DATE RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MO. ____ DAY ____ YR. ____

AID 1330-4 (5-75)

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT PAPER FACESHEET

TO BE COMPLETED BY ORIGINATING OFFICE

1. TRANSACTION CODE (X APPROPRIATE BOX)
☐ ORIGINAL ☐ CHANGE ☒ ADD ☐ DELETE

PP — DOCUMENT CODE 3

2. COUNTRY/REGIONAL ENTITY/GRANTEE: Mali

3. DOCUMENT REVISION NUMBER: 1

4. PROJECT NUMBER: 688-11-130-202

5. BUREAU — A. SYMBOL: AFR — B. CODE: 1

6. ESTIMATED FY OF PROJECT COMPLETION: FY 79 ~~79~~ 81

7. PROJECT TITLE - SHORT (STAY WITHIN BRACKETS): Mali Crop Production

8. ESTIMATED FY OF AUTHORIZATION/OBLIGATION — A. INITIAL MO. 11 YR. ~~75~~ 76 — B. FINAL FY ~~78~~ 80

9. SECONDARY TECHNICAL CODES (MAXIMUM SIX CODES OF THREE POSITIONS EACH)

10. ESTIMATED TOTAL COST ($000 OR EQUIVALENT, $1 = ____)

A. PROGRAM FINANCING	FIRST YEAR B. FX	FIRST YEAR C. L/C	FIRST YEAR D. TOTAL	ALL YEARS E. FX	ALL YEARS F. L/C	ALL YEARS G. TOTAL
AID APPROPRIATED TOTAL						
(GRANT)	(1,900)	( )	(1,900)	(9,894,741)	( )	(9,894,741)
(LOAN)	( )	( )	( )	( )	( )	( )
OTHER 1.						
U.S. 2.	1,900		1,900	9,894,741		9,894,741
HOST GOVERNMENT	307		307	707,592		707,592
OTHER DONOR(S)						
TOTALS				10,602,333		10,602,333

11. ESTIMATED COSTS/AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION PURPOSE (ALPHA CODE)	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE	FY ___ D. GRANT	FY ___ E. LOAN	FY ___ F. GRANT	FY ___ G. LOAN	FY ___ H. GRANT	FY ___ I. LOAN	ALL YEARS J. GRANT	ALL YEARS K. LOAN
	112	072	1,900		3,000		4,000			
TOTALS			1,900		3,000		4,000			

12. ESTIMATED EXPENDITURES

13. PROJECT PURPOSE(S) (STAY WITHIN BRACKETS) ☒ CHECK IF DIFFERENT FROM PID/PRP

Increase cereal production in chronically deficit Gao area of the 6th Region of Mali and introduce the farmers in the area to the concept of technological development.

14. WERE CHANGES MADE IN THE PID/PRP FACESHEET DATA NOT INCLUDED ABOVE? IF YES, ATTACH CHANGED PID AND/OR PRP FACESHEET.
☐ YES ☒ No

15. ORIGINATING OFFICE CLEARANCE

SIGNATURE: [signature]

TITLE: Country Development Officer

DATE SIGNED: MO. 10 DAY 30 YR. 75

16. DATE RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MO. ____ DAY ____ YR. ____

AID 1330-4 (5-75)

III. Subproject ACTION RIZ-SORGHO GAO

Part 1 - Project Summary and Recommendations
- A - Project Development Team
- B - Summary of Authorization and Actions
- C - Description of Project
- D - Logical Framework

Part 2 - Project Background
- A.-Project (including evaluation of IBRD)
- B -AID Involvement

Part 3 - Analyses
- A - Social - SATEC data
- B - Economic - SATEC data
- C - Technical Soundness
  1. Description
  2. Cost breakdown and budjet
  3. Appropriateness of the technology
- D - Financial Soundness
  1. Return to Farmers
  2. Recurrent Budget Analysis
  3. Other Donor Cooperation
  4. Budget Summary

Part 4 - Implementation
- A - Implementing Ability of Host Country Organizations
- B - Implementation Schedule
- C - Implementation Plan
- D - Evaluation Arrangements
- E - Conditions and Covenants
- F - Negotiating Status

Part 5 - Summary and Issues
- A - Summary
- B - Issues

Attachments
- A - Map

III. SUBPROJECT "ACTION RIZ-SORGHO", G A O

PART 1 - Project Summary and Recommendations

A - Project Development Team:

Gary Nelson - Capital Project Officer - REDSO/WA
Quincy Benbow - Agriculture Sector Officer - CDO/Bamako

B - Summary of Authorizations

Funds:

FY 76	FY 77	FY 78	Life of Project

C - Project Description

The project goal is to decrease the cereal deficit in Mali which has required approximately $100,000,000 of annual food imports during the past five years. The purpose of this specific subproject is twofold: 1) to increase cereal production in the chronically deficit Gao area of the 6th Region of Mali, and 2) to introduce the farmers to the concept of development through technological advances.

The project will concentrate on using labor-intensive methods to construct low level irrigation works consisting of earth dikes, hand-dug canals, and gates with fish grills to prevent rice-eating fish from entering the paddies. The approach will be truly labor-intensive with no machinery used in construction. This approach is made possible by the low wage rates (150 Malian francs a day, 100 in cash and 50 in food equivalent) and the lack of alternative employment. It is a useful approach because of the remoteness of the area and the need for involvement of the farmers from the beginning.

One major emphasis of the project will be on expanding the area of rice cultivated by 15,000 ha. It will also provide a small increase in yields due to better fish control and emergency pumping. The second major effort will be on construction of civil works, introduction of emergency pumping, the promotion of flood recession sorghum plantings on 10,000 ha using selected local varieties, and on demonstrations and promotion of higher level technologies.

Although a complete technical package of improved practices, including improved varieties, fertilizers, and insecticides will be made available and promoted among the farmers, it is neither the major emphasis nor the basic building block of the project. Due to the low development cost per hectare acceptance of the technical package is not necessary to make the project economically feasible.

The following Logical Framework gives the detailed project description.

The primary beneficiaries of the project will be approximately 20,000 poor rural farm families in the vulnerable 6th Region of Mali, having a total population of over 140,000 persons. Secondary beneficiaries will be those hired as laborers on the construction works and those grain consumers who realize a greater availability of staple cereal grains. It is estimated that the increased cereal production will be able to provide the total annual requirements for over 100,000 persons.

The project will benefit women as well as men, as the women share the work loads equally with men. It is foreseen that women will be involved as daily hire workers to a small extent as well as with the farming. The project causes minimal disruption to the present culture and the present relationship of the sexes will not be altered.

MALI CROP PRODUCTION — L O G I C A L F R A M E W O R K — SUBPROJECT ACTION RIZ-SORGHO

Narrative	Objectively Verifiable Indicators	Assumptions
GOAL: Decreased cereal deficit in Mali	Total staple food imports decreased by 1980.	Concerning long-term value 1) food self-sufficiency is valid goal and is desirable for Mali.
PURPOSE: Increase cereal production in chronically deficit Gao area of the 6th Region of Mali and introduce the farmers in the area to the concept of technological development.	EOPS 1) Total annual cereal production in Gao area increased to over 25,000 MT/yr by 1979. 2) At least 500 farmers adopting improved varieties by 1979. 3) At least 80 T of fertilizer sold in 1979.	Affecting purpose to goal link 1) Other AID subprojects and other donor food production projects initiated as planned. 2) GOM continues to support food production projects. 3) Favorable balance in world price of food grains US cash crops remains.
OUTPUTS: 1) Increased number of hectares under cultivation in the area 2) Increased average yield per hectare 3) Farmers introduced to new technologies.	1) 5,000 new ha of rice added each of 3 project years. 2) 12,000 ha of sorghum planted in project area in 1978. 3) Average rice yields on project land of 1000 kg/ha. 4) Average sorghum yields of 800 kg/ha. 5) Animal traction, fertilizer and variety demonstrations done in each village each year.	Affecting output to purpose link 1) No large scale projects are developed on the upper Niger river which disrupt the flood cycles. 2) New sorghum varieties prove adaptable to Gao area. 3) Favorable balance between agricultural input prices and cereal prices is maintained.
INPUTS: 1) Capital a) Construction of minor irrigation works b) Purchase of pumps and hand tools 2) Technical a) Staffing b) Administrative support c) Training d) Demonstration	See budgets.	Affecting input to output link 1) Sufficient manpower is available and willing to work on construction. 2) Labor price does not increase significantly. 3) Farmers are willing to work larger hectarage. 4) "Action Riz-Sorgho" can attract sufficient extension agents soon enough to train them. 5) AID funds are available to pick-up when IBRD funds end in Dec. 1975.

PART 2 - PROJECT BACKGROUND

A - The Project

The project was originally funded in late 1973 by IBRD emergency funding in the amount of 155 million Malian francs ($387,500) which was to allow the inclusion during two years of 1,500 hectares of rice land and 500 hectares of improved sorghum in the project. Of these 2000 ha, 1300 ha were to be improvement of lands already under cultivation and 700 ha were to be new lands.

Funds were approved in 1973 but it was nine months before the staff was recruited and supplies were in place to begin operation. Between September 1974 and June 1975 the organization began functioning and constructed 17 km of large dikes, 27 km of small dikes, and 18 km of canals and installed 14 water-gates with fish grills using hand labor from the villagers. This allowed them to begin the project in the 1975 crop season on about 1000 ha of rice land in four villages, 2 north of Gao and 2 south of Gao. The PP team visited all four of these sites and found that in three of the four villages the farmers seemed very pleased and very interested in what land could be included in the future. The rice looked quite good and the agents and "Action Riz-Sorgho" staff were familiar to the people and were being asked for advice on possibilities for pumping water to some of the higher paddies.

In the fourth village the village chief was openly dissatisfied with the project. The problem was that a fish grill had bent under the force of the water and rice eating fish (a grass carp) had eaten 3/5 of the rice. He was understandably very upset and the Malian engineer on the project explained (in the local language) at length that next year a stronger design standard would be used for the grills in water with strong currents.

Thus it appears the organization is functioning and could make a definite impact upon the area. However, the IBRD emergency funding ends in December 1975. Without further funding any expansion beyond the pilot 1000 ha is unlikely. The farmers do not have the capital necessary to purchase the tools for dike and canal construction nor to put in the water gates and fish grills needed. Since the IBRD programming cycle does not allow picking up the project immediately under regular funding, the Government of Mali has requested USAID to assist.

B - AID Involvement

In January 1975 a PRP team, following up on a lead suggested in the DAP, visited the site and included the project in the Mali Crop Production PRP. Discussions continued between CDO Bamako and the GOM until September 1975 when this PP team went to the field. In the interim, SATEC had completed its study "Etude de Reconnaissance de la Valee du Niger dans la Region de Gao", which performed sociological, hydrological, economic and agronomic studies on the area considered under "Action Riz-Sorgho". The results of this study are summarized in the analyses section.

PART 3 - ANALYSES

A - Sociological Analyses

A complete sociological analysis of the "Action Riz=Sorgho" area was performed by SATEC as a part of their 18-month study of the area completed in April 1975. Their findings, related to the minimum technology approach to development, as well as the findings of the PP team are presented here.

The population of the Gao region is concentrated along the river and consists mostly of the Sonrai and Peul tribes. The population density is high for a Sahel area with an average of 125 persons per square kilometer. For this reason the average land holdings are only 1 1/3 hectare per nuclear family of 7 persons compared with an average for the rest of Mali of over 4 hectares per family.

The land tenure system consists of village lands and family lands, the former administered by village elders and the latter by family heads. The majority of the lands are village lands which are allocated to individual nuclear families which is normally renewed. These are added to whatever land the family may also own. Non-village members may rent village lands for a rent of approximately 20% of the harvest payable in kind at harvest time. Family lands may also be rented or loaned to other families.

The people of the area are both herders and cultivators and part of the male population follows the herds. This leads to a labor constraint during the rainy season while the cattle are away from the river.

The SATEC study supports the opinion of the PP team that the "Action Riz-Sorgho" program represents a level of technology which will probably prove most easily introduced into the area. The project as proposed will expand the area suitable for cultivation while maintaining a feasible workload spread by continuing direct seeding of rice, allowing a slightly more regularized planting schedule through pumping and by encouraging flood recession sorghum as an off-season crop.

The planned technologies are improvements over traditional methods but do not represent a great change in practices. Although the project will be encouraging increased cooperation between families, especially in construction and maintenance of main dikes and canals, individuals will still have their individual fields and paddies demarcated by small dikes and therefore will not lose their independence. Furthermore, the more advanced technologies of fertilizers, insecticides, animal traction and improved seed varieties will be demonstrated and made available to farmers who will be free to adapt at whatever time and to the extent their own risk factor allows. If the experience of "Action Riz-Sorgho" in its first year serves as an indication, the extension agents have found that few farmers in any given village are interested in using small amounts of fertilizers while a few more are willing to try a little plot of improved varieties. The extension agents expect fertilizer usage to increase in future years as leading farmers have increased hectarage under cultivation allowing them to use improved technologies while maintaining a constant

security planting following traditional methods. The SATEC report emphasizes that only after reasonable water control and control of the rice eating fish is effected will the farmers consider more advanced technologies. "Action Riz-Sorgho" recognizes this and its program is directed mainly toward water and fish control and making more advanced technologies available to the farmers. Their first year's program on approximately 1000 ha indicates that the people are adequately receptive of the basic technologies.

B - Economic Analysis

The purpose of the project is decreasing the present deficit in the Gao region. Therefore, a large part of the incremental production will be for autoconsumption and most of the surplus will probably be bartered with the nomads for sheep and cattle or sold locally. We do not anticipate a significant increase in cereals officially marketed and any marketed surplus will probably move in the parallel market to Niger where prices are better.

Gao is one of Mali's poorest regions mainly because of its location and small quantity of rainfall. It is isolated from the rest of the country for a greater portion of the year which has retarded its economic growth. River transport, available for 6 months of the year, has been the best means for moving commodities into the region. The economic analysis will address the benefit derived from local production of grains vs. imported grains in the GAo area as well as the value of the grain at official prices.*

* Using rice alone the SATEC study showed an IRR of 6.8%. Even though this IRR is low, the real benefit of the project is in replacing the cereals presently imported at a cost of approximately $250 per ton.

PRODUCTION

	Present total 6th Region	Present Riz-Sorgho Area	End of Project in Riz-Sorgho Area	Increment
Total area cultivated	40-50,000	20-25,000	40-45,000	20,000
Rice	15,000	10,000	20,000	10,000
Sorghum	3,000	2,000	12,000	10,000
Millet	20,000	10,000	10,000	--
Other	5,000	2,000	2,000	--
Yields kg/ha				
Rice	500-800	500-800	1,000	200-500
Sorghum	400-600	400-600	800	200-400
Millet	200-300	200-300	NA	NA
Total Production MT				
Rice	10,000	6,500	18,000	11,500
Millet & Sorghum	6,000	3,500	11,500	8,000
Total Cereals	16,000	10,000	29,500	19,500

Source: SATEC April 1975 report and Action Riz-Sorgho request.

CONSUMPTION

	Number	Consumption/kg/yr/person	Total Requirement MT
Active adults	200,000	200	40,000
Other population	256,000	100	25,600
Total	456,000	NA	65,600
Total end of project production	NA	NA	29,500
Continued Deficit			36,100

Sources: Action Riz-Sorgho Population estimates SATEC family size and composition.

From the above table it can be seen that by developing 10,000 ha of new rice lands, improving 5000 ha of existing rice lands and expanding flood recession sorghum by 10,000 ha the area can significantly decrease the food deficit in the Gao area.

In order to perform the economic analysis of this production we have made the following assumptions:

1. The existing rice land to be improved under the project has a present average yield of 650 kg/ha.

2. All the rice land (15,000 ha) in the project will have an average yield of 1000 kg/ha.

3. All the land being put into sorghum will be new lands and will have a yield of 800 kg/ha.

4. The major capital expenditures will all be on the rice land since flood recession sorghum does not require the miror irrigation works although some minor pumping may take place.

5. The IBRD and SATEC findings of an average development cost of $225/ha for the irrigation works is valid.

6. An average cost of $25/ha after the first year for recurrent costs including repair and maintenance of dikes and operation of the pumps is reasonable.

7. Operating expenses of the "Action" office, including staff, will be approximately $500,000 per year for the three development years and drop to approximately $160,000 per year after that time.

8. Calculations will be made at the official price of 40 MF/kg for rice and 32 MF/kg for sorghum.

9. Destructive fish will be prevented from entering rice paddies, reducing loss caused by this means.

Based on the above assumptions, we see the following benefit-cost stream:

BENEFITS

Year	Rice W.proj.	Rice w/o proj.	Rice incre.	Rice Value $000	Sorghum W.proj.	Sorghum w/o proj.	Sorghum incre.	Sorghum Value $000	Total Increm. Value
1	9,500	6,500	3,000	300	3,400	1,000	2,400	192	492
2	13,000	6,500	6,500	650	6,600	1,000	5,600	448	1,098
3	18,000	6,500	11,500	1,150	9,000	1,000	8,000	640	1,790
4-10	18,000	6,500	11,500	1,150	9,000	1,000	8,000	640	1,790

COST VS. BENEFITS $000

Year	COSTS Land Develop.	Land maint.	Admin.	Total	Total Benefits	Net Benefits
1	1,125		800	1,925	492	- 1,433
2	1,125	125	400	1,650	1,098	- 552
3	1,125	250	300	1,675	1,790	115
4-10	--	375	100	475	1,790	1,315

The internal rate of return on this benefit stream is calculated at approximately 35% which appears to be slightly optimistic but attainable. The very low per hectare cost of development plus the fact that the sorghum does not require additional investment but can and will be grown after the rice harvest either on the same land or other flooded lands in a form of double cropping explains the high IRR.

Savings based on the substitution for grain imported into the region is substantial because of high transportation costs. This cost, estimated at $3,661,120 represents 80% of the cost of the project.

The conclusion of the project design team is that the project is economically feasible especially in view of the use of its production to reduce the large quantity of imported grains presently needed to supply the region's requirements.

C - Technical Soundness

1. Action Riz-Sorgho is being carried out on a limited basis in the 6th region of Mali. It takes place only in the river valley where soils are typical river soil except for the higher level sandy alluvial deposits which lend themselves to the production of sorghum. The rainy season begins in July and ends in September during which 175 mm to 300 mm fall. Rice and sorghum are the only crops produced in the area since limited rainfall and high subsoil permeability make it virtually impossible to produce outside the river basin. Grassland for cattle grazing is very limited which poses a considerable problem to the cattle producers who must compete with crop production.

All of the land is cultivated in the traditional manner, with hoe and other hand tools, except for a few small demonstration plots. The farmers have not changed much from the traditional method of doing things: they plant during the rains and wait for the floods to complete production. The method is one of sowing rice seeds in the river basin, planting sorghum with the hoe. A few exceptions are being practiced where seedbeds are planted and seedlings are transplanted prior to the floods. The weeding problem is solved mainly by the deep water during the floods.

Commercial fertilizer (urea) is being introduced in the area and farmers have seen the results of the use of fertilizer. However, due to the subsistence nature of farming they are unable to buy in large quantities. Animal manure is not used mainly because the constant movement of grazing animals renders collection unfeasible.

Sorghum is planted in March and April on receding water and rice is planted in May through July during the rains. Both crops are subject to floods during the growing season, making it impractical to plant other crops as an interplant or substitute. Crops are not normally rotated because of the manner in which they must be planted. Rice is always planted on flooded land while sorghum is planted on all of the land but at different times.

Ninety percent of the rice planted in the sixth region is floating rice. Action Riz-Sorgho is recommending three rice varieties: (1) Moberries, which grows to three meters and produces in five months. (2) Tatarra, which is produced in 3 1/2 months at a height of three meters. This variety is normally planted at the early part of the planting season, permitting the farmer to have a supply of rice during the hard working season. (3) Cosau, which produces in 4 to 5 months. The latter is the standard floating variety used in the main portion of the flooding season.

Five sorghum varieties are being used with selection as a means of improving production. The sorghum are all local and dwarf varieties that have proven to be suited to the area from the standpoint of production, pest resistance, and flood tolerance during maturation.

The grain is harvested when fully matured and fully dried by cutting off the heads. The farmers usually store the product in heads until it is consumed. The grain in general has a very high storage capacity, although the average farmer's long-term storage is limited to seeds for planting.

Research for improved practices in rice and sorghum production has been carried out in much the usual manner but with a less instructional approach than other areas of production in Mali. Emphasis is placed on the improvement of varieties, introduction of improved tillage and cultural methods, pest control and introduction of chemical fertilizers. While chemical fertilizers are being introduced on a small scale, this is not expected to be a major cost factor to the average farmer of the 6th region. Many farmers have seen the use of fertilizer and are willing to use it, but credit and expansion seems to be a major constraint. Credit in kind for planting materials will accelerate the total cultural practices as this PP recommends. It is expected that credit in kind be given to participating farmers in such essential commodities as improved seeds, fertilizer, and the use of the irrigation facilities. The credit in kind will go a long way in assisting the farmer to rise from a traditional subsistence level to a productive level. The credit will be repayed in the commodity produced at a market value.

Seedbed preparation, weeding, planting in line, seed treatment and increased plant population are being introduced by Action Riz-Sorgho. The most important element of control is the prevention of carp from entering the rice paddy. The expansion of Action Riz-Sorgho will largely depend on the construction of dikes, canals and the availability of material and supplies. There is a good possibility that the organization can expand from the present 950 ha to 40,000 ha. Such an expansion would increase the ha. of rice from 600 to 15,000 and sorghum from 300 to 25,000.

The project is to be a multi-donor effort of Mali, the U.S. and France, The project contains a training program which will develop Malian capability to totally administer the project. The project will be carried out by the Malians assisted by a French national who is already attached to the project and will remain as the French contribution to the project. The financial support of the project will largely be the U.S. responsibility with Mali assuming the salary of its personnel.

2. Cost Breakdown to Budget:

The GOM will assume the responsibility of managing the project with its staff already in the Action Riz-Sorgho area. The Malian staff has shown excellent performance in the year they have been operating the project. The project director has shown an exceptional ability to coordinate his staff and serves as the main link from the project area to the Ministry of Agriculture.

3. Appropriateness of the Technology:

It has been determined that the technology involved is appropriate and the best available, that the project is technically and financially sound, and that the GOM is fully involved in the project from its origin. the GOM desires to continue this project and anticipates a substantial reduction in imported grains into the sixth region. The technology is not totally new to the region but is more intensified. It is a step by step approach from the present simple level to a higher level of production.

As stated in other parts of this paper, the present staff of Action Riz-Sorgho is competent. However, this does not preclude the fact that training should not be carefully designed as to improve the capability of the project staff to cope with an expanding program. Such training should include trips to 3rd country with similar program, school of irrigation technology, instruction of grain production, and schools of mechanics.

D - Financial Soundness

1. Return to Farmers:

In this analysis we shall address both the minimum technology of dikes, canals and minimal pumping and the more advanced technology of fertilizers, improved seed, insecticides and more intensive pumping. Under the minimum technology we see the following costs per hectare, assuming the fees are charged for the pumping:

1) Dike maintenance - 15 days	MF 2,250
2) Pumping	6,000
	MF 8,250

For this effort the farmer can realize gains as follows:

New yield	1000 kg/ha
Old yield	650 "
Increment	350 kg/ha

This 350 kg has a value of 14,000 Malian francs at the official price of 40 MF per kilo. Therefore, for a total investment of under 10,000 MF he realizes a gain of 14,000 MF for a net benefit of approximately 4,000 MF. Should the principle of fee payment be accepted, a charge of 6000 MF/ha for minimal emergency pumping of only a few days per year would require the farmer to commercialize about 150 kg of rice or approximately 15% of his rice crop. The question of fees has been identified as an issue and will be negotiated with the GOM.

As distinct from the improved practices package wherein the farmer could expect yields to increase to 1000 kg/ha, the following farm budget shows that with the more advanced technologies the farmer can anticipate yields of 1600 kg/ha.

Costs:	Fertilizer 85 kg at 85 MF/kg		7,225 MF
	Insecticide 3 kg at 500 MF/kg		1,500 MF
	Pumping 10,000 MF/ha		10,000 MF
	Dike maintenance 25 days at 150MF/day		3,750 MF
			22,475 MF
Benefits:	Yield w/o project	650 kg/ha	
	Yield with package	1600 kg/ha	
	Increment	950 kg/ha	
	Value at 40 MF/kg		38,000 MF
	Cost		22,475
	Net Benefit		15,525 MF/ha

This net benefit of 15,525 MF represents an increase of over 11,000 MF over the minimum technology package for the farmer's additional investment of 14,000 MF. Of the farmer's total production he would have to market at least 470 kg or 30% of his production in order to pay the costs of his purchased inputs. However, even with the sale of this increased percentage, he would still have a larger residual to dispose of as he wished than with the minimum technology package.

Action Riz-Sorgho is prepared to make the necessary inputs available to farmers on a seasonal credit basis which is essentially a barter arrangement. For example, if a farmer received 85 kg of improved and treated seed, he will return 100 kg at the end of the season, this in turn will be treated and stored and made available to other farmers the following year. For fertilizers the farmer will repay at the time he sells his rice through the "Action" office which will act as agent for OPAM. Must he sell to them?

Inputs will also be available on a cash basis and the 2 adult workers in the family would earn enough in 1 1/2 month of paid labor on the dike construction to purchase the necessary chemical inputs for one hectare.

2. Recurrent budget analysis:

A major problem in the project is how the "Action Riz-Sorgho" organization will be able to support its recurrent costs after the end of AID involvement as it is not programmed to receive any independent revenues.

The PP team can see the solution to this problem as being one of decreasing the "Action" staff and administrative support to a level supportable by the GOM budget after the initial development phase is completed coupled with charging reasonable fees for the special services provided such as pumping.

In the early development years, it is important that a sizable staff be maintained for implementing the design and construction, and for introducing the more advanced technologies. However, once the construction is completed, a large part of the staff can be reduced since we can assume that by the third year a sizable number of farmers in each area will be utilizing the minimum technology. Since some farmers will be utilizing the more advanced technologies, it would seem that these farmers could act as demonstration farmers and pseudo-agents to spread the technologies among their neighbors. The reduced government extension staff can provide special technical advice, input supply, marketing and pumping services as needed by the farmers.

The PP team suggests that this phase-out of personnel be agreed to in principle at the time of the project agreement and that the detailed plan for phasing out the staff to a level supportable by the GOM budget be drafted by the joint evaluation team in February 1978.

As was illustrated in the preceding section (3.A.1) the farmers' benefits are easily large enough to allow charging of reasonable fees either in cash or in commodity for operation of pumps, seed treatments, etc. Again the

PP team strongly recommends that agreement in principle to charging fees for pumping after the initial development years be reached at the time of negotiations. It is foreseen that during February 1978 joint evaluation the question of fees could be examined in detail based on farmer acceptance and costs of operation in the first 2 years and a reasonable fee to cover the operating costs could be established for implementation in 1979.

E - Other Donor Cooperation

The only other donor presence is the French national who has served as engineer advisor since the initiation of the project while funded by IBRD. The GOF has conditionally agreed that he can stay on as their contribution to the project. It is assumed that the UNDP/FAO proposed seed production project and the IRAT research organization will assist in the project area. This assistance will be in the form of seed production and research. IRAT which is not operating in the area will probably extend their operation to the sixth region. The UNDP/FAO proposed seed production program could serve a useful purpose after a proper selection has been made from the existing program.

F - Budget Summary:

The proposed budget for the continuation of Action Riz-Sorgho is for 3 years with the first year commencing in January 1976 and the third year ending in 1978.

For the purpose of facilitating the management of the project, it is expected that all contributions from U.S. sources be made to a special project fund to be managed by the GOM project Director subject to review and approval of plans and budgets by AID and appropriate GOM officials. The GOM contribution is limited to the salaries of the workers, which is in the structure of the existing machinery and does not necessitate any transition.

Rice agronomist needed??

SUMMARY OF COST COMPONENT

	TOTAL	FY 76	FY 77	FY 78
I. GOM:				
A. Salary of headquarters staff	330,792	104,014	110,264	116,514
B. Salary of field workers	372,300	124,100	124,100	124,100
C. Other Costs (contingencies)	4,500	1,500	1,500	1,500
Total GOM Contribution:	707,592	229,614	235,864	242,114
II. U.S. Contribution:				
A. Recurrent	946,250	390,000	302,750	253,500
B. Capital	2,249,557	800,725	744,566	704,266
C. Allowances (for Malian counterpart staff)	18,750	12,500	6,250	
D. Other Cost, including contingencies for inflation and currency adjustments 15%	482,184	180,484	158,035	143,665
Total U.S. Contribution:	3,696,741	1,383,709	1,211,601	1,101,431
TOTAL PROJECT COST:	4,404,333	1,613,323	1,447,465	1,343,545

II A

U.S. Contribution (Recurrent)

	FY 76	FY 77	FY 78	3 Years
1. Agricultural inputs	75,000	75,000	75,000	225,000
2. Office operations	10,000	8,000	9,000	27,000
3. Vehicle operations	172,500	143,500	142,500	458,500
4. Motor pump operations	100,000	50,000		150,000
5. Training	20,000	20,000	27,000	67,000
6. Special allowances for GOM personnel	12,500	6,250		18,750
TOTAL US RECURRENT CONTRIBUTION:	390,000	302,750	253,500	946,250

II B

U.S. CONTRIBUTION (CAPITAL)

COMPONENT	FY 76	FY 77	FY 78	Total
1. Survey equipment	18,625			18,625
2. Transportation equipment	176,666	176,666	176,666	529,998
3. Field equipment	144,100	144,100	144,100	432,300
4. Construction and maintenance	383,334	383,500	383,500	1,150,334
5. Aerial study of project area	25,000			25,000
6. Housing	53,000	40,300		93,300
TOTAL:	800,725	744,566	704,266	2,249,557

PART 4 - IMPLEMENTATION

A - Implementing Ability of Host Country Organizations

1. Action Riz-Sorgho - As discussed in the background section (Section III, Part 2 A) of this paper, the "Action Riz-Sorgho" organization has shown that they can stimulate development in the area. With approximately 1000 ha brought under the program in the first year it is obvious that they have some capability.

The central staff of the"Action" is well trained with most of the staff having technical degrees from European universities. The blend of talents collected to form the staff shows good planning with both the engineering and agronomic fields well represented. With the addition of an officer for training of extension agents, the staff will be fully adequate, with the following capabilities:

1) Director - Agronomist
2) Assistant Director - Agronomist with water resource background
3) Engineer - civil engineer with irrigation experience
4) Training specialist - agronomist with extension experience
5) Chiefs of zone - graduates of Malian Agricultural School.

In addition to the above Malian staff, one FAC-funded French engineer is assigned to the project as technical advisor.

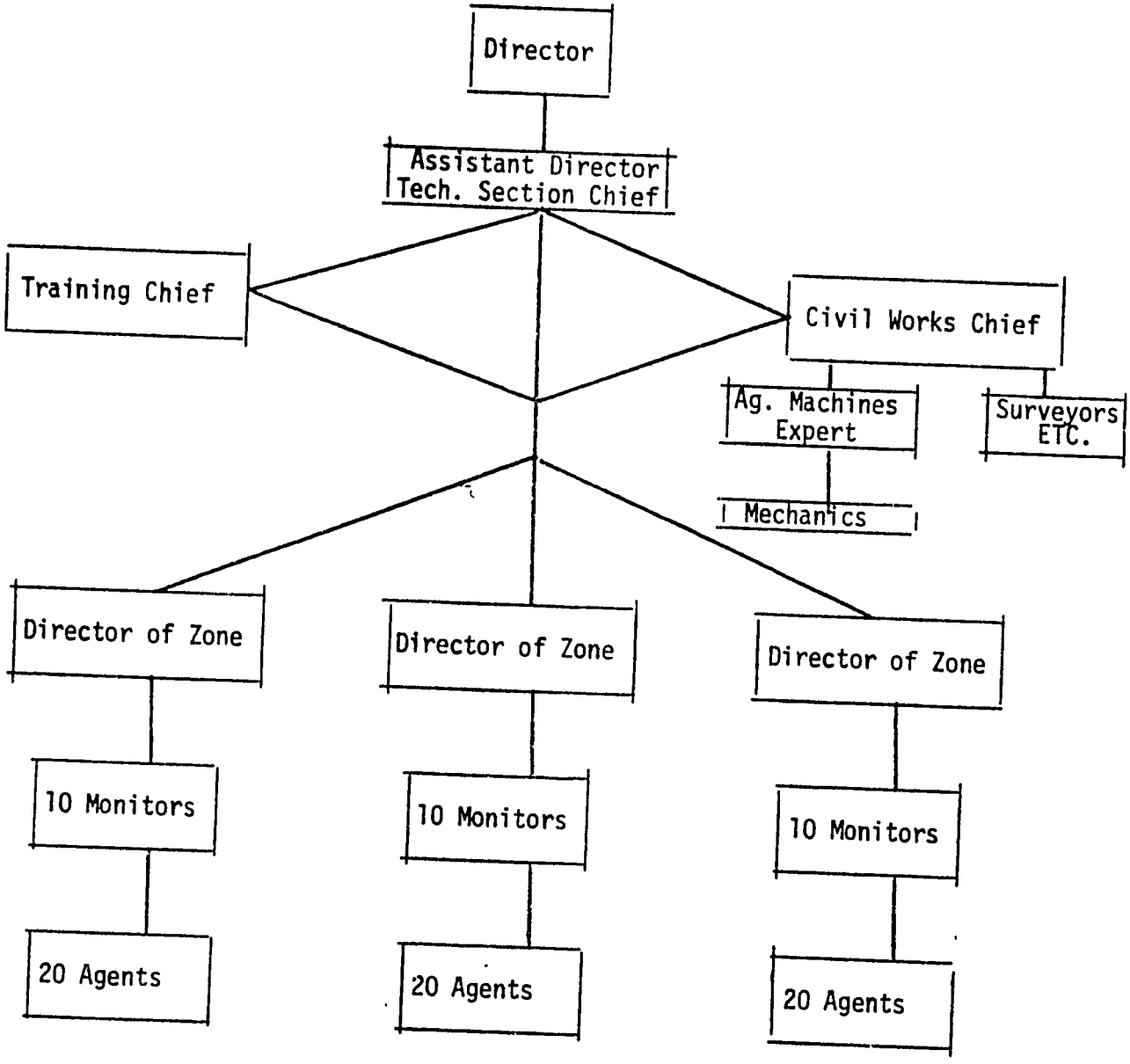
The organization appears to do adequate planning as evidenced by ample supplies of needed inputs at each of the sector offices, adequate fuel supplies for the pumps at each sector office and a reasonable idea of what would be necessary in terms of personnel to expand the project. The PP team was of the impression that financial planning might be a little weak but the increased emphasis on budgeting and adhering to the budget inherent under an AID grant should be helpful to the organization. The PP team feels that some additional assistance in forming the complete annual budget for at least the first year could be provided as an AID input.

The present simplified structure of the organization with the agents reporting directly to the central staff would become unmanageable as the organization increased in size. Therefore, the project plans call for a rather elaborate management structure within the "Action".

The following diagram shows the planned organizational structure.

ORGANIZATIONAL CHART

ACTION RIZ-SORGHO



SCAER

Agricultural inputs are provided to "Operations" by the Service du Credit Agricole et de l'Equipement Rural (SCAER). This government organization is charged with the responsibility for the importing and transporting to geographic centers of the "Operations" of all needed agricultural inputs.

A standard price is charged over all of the country and administrative costs are kept to a minimum. The effects of these two actions plus the subsidies on farm inputs discussed in the economic analysis section is to maintain an artificially low price for agricultural inputs which in turn balances the low price of producer products.

SCAER appears to be able to provide adequate amounts of the necessary inputs. Visits to both Mopti and Gao found sufficient supplies of inputs on hand in the "Operation" offices for the coming season.

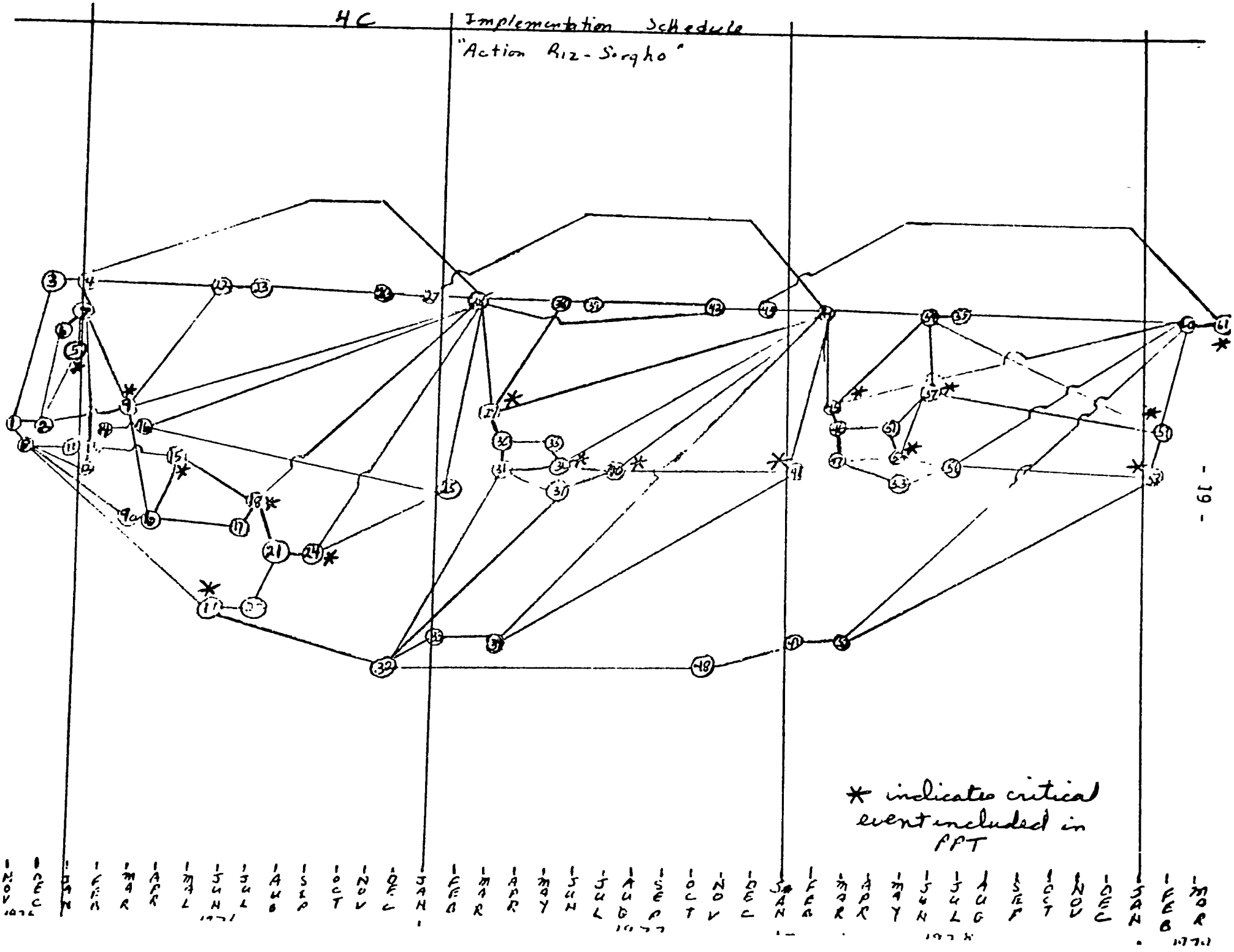
B - Implementation Schedule

The following schedule is a level 2 MIS schedule with the level 1 or PPT events marked and given in a separate narrative. This network will be of sufficient detail for AID monitoring but CDO/Bamako may wish to create a level 3 network showing greater detail of some portions of the work, particularly the construction works. The timing of the project is inherently dependent upon the crop season although some flexibility would be possible in the number of hectares developed in any given year. It should be emphasized that this network is the current best estimate of both events and times after a two-week association with the project. The network should be revised and updated regularly as needed.

4C

Implementation Schedule

"Action Riz-Sorgho"



C - Implementation Plan

Event No.	Item	Date
1	Authorization	Nov. 1975
2	Agreement	Dec. 1975
3	1976 detailed budget submission	Dec. 1975
4	1976 detailed budget approval	Dec. 1975
5*	Joint account opened	Dec. 1975
6	Specimen signatures obtained	Dec. 1975
7	DRA opened	Jan. 1, 1976
8	Malian recruitment begins	Nov. 1975
9*	5000 ha for 1976 development ID	Feb. 1976
9a	Surveyors on board	Feb. 1976
10	Surveying begins	Mar. 1976
11	Training coordinator on site in Gao	Dec. 1975
12	Minimum of 10 monitors and 15 agents recruited and on board	Jan. 1976
13	Extension course for agents and monitors in construction and sorghum complete	Feb. 1976
14	Sorghum planting begins	Feb. 1976
15*	Construction begins	Mar. 1976
16	Sorghum planting finished	Apr. 1976
17	Surveying complete on 5000 ha	June 1976
18*	Construction complete on 5000 ha	June 1976
19*	All monitors and agents on board	May 1976
20	Rice culture training complete	June 1976
21	Rice planting begins	June 1976
22	6 month report and budget revision submitted	May 1976
23	Report and budget revision accepted	June 1976
24*	5000 ha of new rice land planted	Aug. 1976

Event No.	Item	Date
25*	Rice and sorghum harvest complete	Jan. 1977
26	1977 Annual budget submitted	Nov. 1976
27	1977 Annual budget accepted	Dec. 1976
28	Annual joint evaluation	Feb. 1977
29*	5000 ha rice for development in 1977 identified	Feb. 1977
30	Surveying begins	Mar. 1977
31	Construction begins	Mar. 1977
32	Training course in construction and sorghum	Nov. 1976
33	Sorghum planting begins	Jan. 1977
34	Sorghum planting finished	Apr. 1977
35	Surveying of 5000 ha complete	June 1977
36*	Construction on 5000 ha complete	June 1977
37	Rice planting begins	June 1977
38	6 month report and budget revision submitted	May 1977
39	Report and budget revision accepted	June 1977
40*	5000 ha of new rice land planted	Aug. 1977
41*	Rice and sorghum harvest complete	Jan. 1978
42	1978 Annual budget submitted	Nov. 1977
43	1978 Annual budget accepted	Dec. 1977
44	Annual joint evaluation	Feb. 1978
45*	5000 ha of rice land for 1978 identified	Feb. 1978
46	Surveying begins	Mar. 1978
47	Construction begins	Mar. 1978
48	Refresher training course	Nov. 1977
49	Sorghum planting begins	Jan. 1978
50	Sorghum planting finished	Apr. 1978

Event No.	Item	Date
51	Surveying of 5000 new hectares complete	June 1978
52*	Construction on 5000 new hectares complete	June 1978
53	Rice planting begins	June 1978
54	6 month report and budget revision submitted	May 1978
55	6 month report and budget revision accepted	June 1978
56	5000 ha of new rice lands planted	Aug. 1978
57*	Begin phase-out of "Action" staff	June 1978
58*	Rice and sorghum harvest completed	Jan. 1979
59*	"Action" staff reduced to 20 agents and 4 central staff with 10 staff members	Jan. 1979
60	Final report submitted	Feb. 1979
61*	Final joint evaluation	March 1979

* = events for PPT

D - P P T

Implement. Event No.	Event	Qualification	Date
5	Joint Account opened	US and GOM contributions according to detailed budgets in bank and available for disbursements	Jan. 1, 1976
9	Lands for development in 1976 identified	5000 ha of new rice lands identified and approved for development	Feb. 1976
15	Construction begins	Construction of dams, dikes, gates, canals, etc. for development of the 5000 ha identified begins	March 1976
19	Staffing	All monitors and agents on board	May 1976
18	1st tranche construction completed	Irrigation works completed on 5000 ha.	JUNE 1976
24	Rice planted	5000 ha of rice planted on land developed	Aug. 1976
25	Harvest	5000 ha of rice and 3000 ha of sorghum harvested under the program	Jan. 1977
29	Lands for development in 1977 identified	5000 ha of rice land for development in 1977 identified	Feb. 1977
36	Construction of 2nd tranche completed	Irrigation works on 5000 ha of rice land identified for 1977 is complete	June 1977
40	Planting	10,000 ha of rice planted under the program	Aug. 1977
41	Harvest	10,000 ha of rice and 7,000 ha of sorghum harvested giving yields of 1000 kg/ha of rice and 800 kg/ha of sorghum	Jan. 1978
45	Lands for 1978 development identified	5000 ha of new rice land identified for development in 1978	Feb. 1978
52	Construction ends	All irrigation works on all 15,000 ha of land planned under the project is complete	June 1978
57	Phase-out of "Action" staff	Phase-out of staff begins according to plan devised at annual evaluation in Feb. 1978	June 1978
58	Harvest	15,000 ha of rice and 10,000 ha of sorghum harvested under the program with yields of over 1000 kg/ha of rice and 800 kg/ha of sorghum	Jan. 1979

59	Action staff reduced	Action staff reduced to minimum per plan of Feb. 1978	Jan. 1979
61	Final joint evaluation	Final evaluation completed and AID involvement ended.	March 1979

E - Evaluation Arrangements

In the implementation schedule events 27, 44, and 61 indicate annual joint evaluations which are to take place in February of each year. It is envisaged that each of these evaluations will involve personnel from CDO/Bamako and either REDSO/WA or AID/W working with their Malian counterparts in Gao to evaluate the past year's progress and form plans for the coming campaign. This evaluation will involve both comparisons against the overall plan of the project in terms of hectares improved, yields per hectare and farmers involved and technical evaluation of both an engineering and agricultural nature.

In addition the February 1978 team should have an economist and a sociologist attached to it in order to evaluate the economic benefits of the project as compared to the projections in the SATEC report and to look into the possibilities for charging fees for the use of pumps to cover recurrent costs. The February 1978 team will also formulate a plan for decreasing the staff of the "Action" once the major construction work is finished and the farmers have been introduced to the basic technology. It is the opinion of the PP team that the staff could be reduced to a central professional staff of 4 with 20 agents and a maximum of 10 other staff and still be able to adequately perform ongoing services. This would keep costs within the present GOM budgeted amount.

F - Special Conditions and Covenants

I. Special Conditions prior to Disbursement under the PROAG:

1. "Action Riz-Sorgho" through the Ministry of Rural Development shall submit a detailed budget of expenditures for the first year.

II. Special Covenants:

1. The GOM shall agree to a joint AID and GOM investigation of the feasibility of charging fees for the usage of pumps in order to cover operating costs.

2. The GOM shall formulate a plan for reducing the staff of "Action Riz-Sorgho" to a level which can be funded by GOM budgetary allocations after 1978. This plan shall be presented to AID in March 1978.

3. "Action Riz-Sorgho" shall submit to AID for their approval each year an annual budget upon which disbursements will be based. Details of the format and content of this budget will be given in implementation letters. This budget is to be submitted not later than December 1, 1975 for the 1976 budget, November 1, 1976 for the 1977 budget, and November 1, 1977 for the 1978 budget.

4. "Action Riz-Sorgho" shall also submit a 6 month report and budget revision by June 30 of each year.

5. "Action Riz-Sorgho" shall also submit an annual report for each calendar year not later than January 31 of the following year.

F - Negotiating Status

Due to the very short time period available for this design effort, the design team was unable to completely negotiate all differences of opinion which have come up. The project is based upon a request for financing prepared by "Action Riz-Sorgho" but the design team feels that the organization is both understaffed and underfunded to be able to accomplish the 40,000 hectares of development which they project. We feel that based upon the work done on the IBRD funded portion of the project and the findings of the SATEC study, the funding requested is probably adequate to do 15,000 hectares of new lands for rice and the staff is probably adequate to handle the extension duties for the 15,000 ha of rice and 10,000 ha of sorghum. Any further increase would, in our opinion, overtax the organization in its projected configuration. Therefore, we have taken a more conservative view of what is possible under the project.

The question of phasing out the staff in 1978 to a level which the GOM can support has not been discussed with the government.

The idea of charging a fee for the use of the pump after 1978 has similarly not been discussed.

The need for joint evaluation was mentioned in discussions but needs to be further amplified.